Injury Assignment
New York City Department of Health and Mental Hygiene, Bureau of Environmental Disease and Injury Prevention
New York, New York

Assignment Description
The New York City Department of Health and Mental Hygiene (NYC DOHMH) is the primary public health agency for over 8 million ethnically and socio-economically diverse people living in the largest city in the United States. DOHMH’s Bureau of Environmental Disease and Injury Prevention (EDIP) conducts research and surveillance to identify and assess environmental and occupational health risks in NYC, and to develop policies, programs and services to prevent their related illnesses, injuries, and death. The Bureau is comprised of a Medical Director, three Offices - Research and Surveillance (ORS), Policy and Programming, and Emergency Planning and Operations, and three Programs - Injury and Violence Prevention (IVPP), Healthy Homes, and Environmental Health Assessment and Communications.

The Fellow will be assigned to the Office of Research and Surveillance (ORS). Under the direction of a seasoned epidemiologist, ORS is currently staffed with six full-time epidemiologists and data analysts, two student interns, and one current injury-focused CSTE fellow. ORS supports the work of all EDIP programs, and specifically works with IVPP staff to provide analysis of injury surveillance on both intentional (e.g., homicide, suicide) and unintentional (e.g., transportation crashes, falls) injuries in NYC to support injury prevention programs and related policies. The Fellow will work closely with the IVPP Director and her staff, to ensure injury surveillance analyses are salient to current program and policy needs.

Injuries are a leading cause of morbidity and mortality for New Yorkers, accounting for approximately 2,600 deaths, 137,000 live hospitalizations, and 601,000 live emergency department visits each year. Leading causes of death and hospitalization rankings reveal that New Yorkers of all ages are affected by injuries (http://home.nyc.gov/html/doh/html/data/ip-index.shtml). Among the youngest New Yorkers, traffic crashes, fires, and falls are among the leading causes of injury death and hospitalization. Recent analyses show that injuries are the top three causes of death among 15 to 24 year-olds. Homicide is the leading cause of death for this age group, with approximately 170 homicides per year. Unintentional injuries and suicide rank second and third respectively. Assaults also feature prominently as a cause of nonfatal injuries among 15 to 24 year olds, with 2,000 assault-related hospitalizations and 17,000 assault-related emergency department (ED) visits occurring each year. Injuries exact a heavy toll on older New Yorkers. Nearly 300 older adults die from falls annually. Approximately 28,000 older adults are treated and released from the ED, and more than 17,000 are hospitalized each year because of falls.
**Day-to-Day Activities**

ORS’s data systems will provide the Fellow with an excellent opportunity to apply and advance his/her epidemiological skills. As experienced by our past Fellows, the Fellow will be a fully integrated member of ORS. The Fellow will attend bi-weekly ORS staff meetings; bi-monthly joint ORS-IVPP staff meetings, and triennial Bureau wide staff meetings. In addition, the Fellow will be encouraged to attend and participate in the agency’s monthly Epidemiology Grand Rounds in order to better understand the surveillance and analysis activities of a large health department, as well as specialized intra-agency work groups including a Data Task Force and Syndromic Surveillance Work Group.

The Fellow will have his/her own analytic projects to work on daily (described in next section). At the same time, the Fellow will be an essential member of our fieldwork and analytical teams, gaining experience in medical examiner chart abstraction, population based survey design and analysis, and in-house data quality control and analysis procedures. The Fellow will become a skilled analyst who helps fulfill injury-related data requests for both internal and external partners, allowing the Fellow to learn ICD-9 and ICD-10 classification systems, including CDC injury classification matrix framework, and build statistical analysis skills in SAS, SUDAAN, ARC GIS, and SQL.

The Fellow will also gain experience in public health communications, as ORS staff are regularly involved in the construction of press releases, presentations for lay and technical audiences, production of material for our website, and data accessible through the Health Department’s queryable databases. We will also encourage the Fellow to interact with other public health professionals working in injury surveillance and prevention. These activities will include attending symposia and meetings organized by EDIP, other City agencies, such as the Department of Transportation and Department for the Aging, and/or community based organizations that are developing prevention programs based on our epidemiologic findings. In the past, we have funded travel for a CDC/CSTE Fellow to attend symposia at the NY State Department of Health’s (NYSDOH) Injury Prevention Program, recognizing that exposure to state-level agency work provides another perspective to a career in government. New York City is home to two CDC funded Injury Control Research Centers – one at Columbia University, the other at Mt Sinai School of Medicine. Each Center has distinct foci, and IVPP has relationships with both of them (with IVPP’s Director serving on the Columbia Center’s external advisory group).

In addition, a range of additional epidemiologic and data analysis training opportunities exist at the NYC DOHMH. The Fellow will be welcome to enroll in DOHMH’s GIS Bootcamp, Epi-In-Action, a scientific writing course, and other staff development workshops.
Potential Projects

Surveillance Activity

Violent Death Surveillance in NYC

Each year in NYC, about 1,200 people die from violence. The landscape of violent deaths in NYC has changed in recent years with suicides now out numbering homicides. Leading mechanisms of suicide differ in NYC compared with national patterns. Through collaboration with the New York State Department of Health, the Bureau of Environmental Disease and Injury Prevention participates in the CDC’s National Violent Death Reporting System, responsible for collecting and reporting information on all violent deaths that occur within NYC. This innovative surveillance system links death certificates, medical examiner investigations, and law enforcement data, into one comprehensive database to provide a comprehensive understanding of the circumstances surrounding violent incidents to help inform local prevention and policy efforts.

The Fellow will be trained to help assist with the abstraction of medical examiner information, perform quality control checks, and assist with the development of an analytic plan. The Fellow will also have the opportunity to conduct analysis and assist with writing summary reports once data collection activities are considered complete.

Surveillance Evaluation

Near-real time surveillance of injury related emergency department (ED) visits: An update based on changes in ED Syndromic Surveillance reporting of chief complaints

The utility of near real-time ED Syndromic Surveillance (SS) data to monitor injuries in NYC was previously demonstrated through the work of a former CSTE fellow (Seil et al., 2015). DOHMH has used ED SS to provide situational awareness and inform prevention messages related to falls during icy weather events and impact of bicycle injuries during citywide bicycle riding promotion events. Since that work was conducted, hospitals have been gradually changing over to a new system to report chief complaints. The system is supposed to yield more standardization across hospitals. Based on a small scale assessment of data reported by hospitals that have made the change, it is clear that new syndromes must be developed to match the current reporting of chief complaints. It will therefore be necessary to conduct an evaluation of the syndromes developed using data from a gold standard administrative dataset from NYS Statewide Planning and Research Cooperative System (SPARCS). In addition to evaluating how well the new syndromes agree with gold standard reporting, a secondary aim will be to evaluate whether the system change has resulted in more uniform and standardized reporting of chief complaints for injury-related visits.

The Fellow will use methods similar to those used in the previous evaluation to develop and refine syndromes based on new chief complaint reporting, in consultation with IVPP Director and agency syndromic surveillance specialists. The Fellow will analyze SPARCS data and ED SS data and perform correlation analysis to compare injury volume and patterns by person time and place between the two systems. The Fellow will be expected to document and interpret the results in a technical report and present findings at the annual CSTE national conference.
Major Project  
**Quality of external cause coding of motor vehicle traffic fatalities**

Motor vehicle crashes are a leading cause of injury death in NYC, with pedestrians accounting for about 50% of these deaths. In 2014 a citywide initiative, Vision Zero, was launched with the goal of reducing traffic deaths to zero. ORS and IVPP are active participants in citywide Vision Zero work groups and ORS utilizes a number of public health surveillance data sources to inform this initiative. Previous work in NYC has described the opportunity for improving external cause of death reporting related to motor vehicle traffic through improved access to crash records during medical examiner investigation of cause of death (Thihalolipavan et al 2011). Analysis of NYC vital statistics mortality data show reductions in percent of motor-vehicle related crashes that are classified as “unspecified” crash role, from 35% in 2006 to 20% in 2011. However, more work may be needed to further improve the quality of external cause coding. For example, a review of medical examiner files for traffic fatalities during 2009-2011 found that 97% of deaths coded to a non-specific ICD-10 code of V89.2 were classifiable as motor-vehicle occupant.

The Fellow will be responsible for analyzing data collected through a review of medical examiner records from 2012-2014 to calculate correspondence between ICD-10 code and classification based on medical examiner record abstraction for determining crash role for motor-vehicle decedents. In addition to working with ORS and IVPP staff, the Fellow will also work with staff from DOHMH Bureau of Vital Statistics and Office of Chief Medical Examiner. The Fellow will also be encouraged to attend Vision Zero work group meetings, as appropriate, to share relevant findings from this analysis. The Fellow will also be encouraged to participate in CSTE’s Injury Workgroup for External Cause Coding Improvement.

Surveillance  
**Leading causes of injury death and hospitalizations in NYC**

Activity

Ranking all injury-related causes of death and hospitalization by age highlights the burden of intentional and unintentional death by mechanism in NYC. NYC DOHMH produces injury checkerboards, similar to those produced by CDC, so the local NYC experience can be compared with national patterns. In order to produce robust estimates, NYC pools three years of data to create these rankings. The Fellow will be responsible for updating these NYC analyses using the most recent three years of data (2012-2014). In addition to providing rankings by age, the Fellow will also produce ranks by county, race/ethnicity, and neighborhood poverty to assess disparities. Working on these analyses will provide the Fellow with a practical application of using ICD codes for injury death and hospitalization and will serve to familiarize the Fellow with CDC injury coding matrix, thereby providing the solid foundation needed to conduct injury surveillance.
Additional Project

Exploring utility of linked death-hospitalization dataset to examine recent falls-related hospitalizations among older adult decedents

Falls are the leading cause of injury related death and hospitalization among older adults in NYC. However, the full burden of falls on mortality outcomes in NYC is unknown, but thought to be high considering the cascade of events that often follow a falls-related event among this vulnerable population. DOHMH has access to a linked death-hospitalization dataset that would allow for an analysis of non-injury related causes of death among older adults who were recently hospitalized for a fall. This analysis could be used to better understand the full scope of the impact falls have on older adults in NYC and could potentially be used to identify certain mortality outcomes that are more common among older adults who recently experienced a falls-related hospitalization that could inform prevention efforts and clinical management.

The Fellow will be responsible for designing the analytic plan that would best support the structure of this linked dataset, performing the analysis, and writing a report describing the results, including the strengths and limitations of the dataset.

Preparedness Role

NYC DOHMH has responded to a number of citywide and national emergencies over the last few years, including Legionella outbreak in 2015, Ebola in 2014, Hurricane Sandy in 2012, Hurricane Irene in 2011, the H1N1 epidemic in 2009, the citywide blackout in August 2003, and the response to the terrorist attacks and anthrax investigation in 2001.

Our current CDC/CSTE Fellow has been involved in the Agency’s response to the Legionella outbreak, assisting with an audit of documentation submitted by buildings to assess compliance with a new policy that cooling towers be disinfected and undergo regular maintenance. The Fellow also served as an Ebola Out of Jurisdiction Coordinator responsible for notifying and collaborating with other jurisdictions to monitor individuals who had returned from travel from Liberia, Guinea, and Sierra Leone. Our former CDC/CSTE Fellows were involved in disaster response by tracking injuries during Hurricane Sandy using syndromic surveillance data and investigating heat-related illness deaths using medical examiner data.

We fully anticipate that the Fellow will be an active member of DOHMH’s Incident Command System particularly its Environmental Assessment and Analysis Resource Group (EAARG) and we are committed to having the Fellow obtain both field and analytical experience during activation.

Additional Activities

The Fellow will be part of the ORS Team, and as such, will help respond to ad hoc requests for injury-related data from other Bureau staff, the Commissioner of Health, City Hall, and the press, as needed. The Fellow may also be involved in survey question development, whether in the form of new questions, or researching examples from existing surveys, for inclusion in numerous local population-based health surveys conducted by DOHMH.
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